INTRODUCTION

In January, 1951, the Douglas Aircraft Company was requested by the Air Force to submit a proposal for the preliminary design of a heavy-duty aircraft capable of transporting a large payload at high speeds with a range consistant with the requirements of present-day military operations. This report describes the features of the XC-132 Logistic Transport and In-Flight Refueler, which evolved from the original design study and proposal and resulted in the XC-132 Phase I program, Contract AF 33 (600)-23055.

At the initiation of the original design study, the configuration trend was for a pod-carrying type aircraft capable of transporting detachable pods, parasite aircraft, missiles, or other types of payload which could be attached to the underside of the aircraft. This resulted in the compilation of GS-1240 which was submitted to the Air Force in February of 1951.

Military evaluation of GS-1240, a twin-boom, pod-carrying aircraft, followed during 1951 and resulted in a further request by the Air Force to make studies and submit additional proposals providing alternate design configurations based on the same type of mission. These studies were reflected in Design Study MX-1707 which was submitted to the Air Force in April of 1952.

Subsequent military evaluation of the MX-1707 Design Study, which contained several configuration alternates of fuselage, wing and aerodynamic shapes, resulted in the selection of the present Model XC-132 aircraft design.

The design mission for this airplane is two-fold, being suitable for use as either a Logistic Transport or as an In-Flight Refueler. As a Logistic Transport the airplane is capable of transporting 100,000 pounds of cargo 3,500 nautical miles (with interchangeability of fuel for payload down to 2,200 nautical miles with 137,000 pounds of cargo, or up to 4,500 nautical miles with 74,700 pounds of cargo.

As an In-Flight Refueler the airplane is capable of transporting 110,000 pounds of fuel within a radius of 2,500 nautical miles. Two airplanes may be refueled simultaneously at a high fuel transfer rate from wing tip drogues. This fuel transfer may be accomplished at speed ranges from Mach 0.75 to Mach 0.8 over a wide range of altitudes.

To fulfill the requirements imposed by missions of such magnitude, it was necessary to coordinate the aircraft development with the development of engines and propellers capable of delivering adequate power. Pratt and Whitney XT-57-P1 turbo-prop engines, and Hamilton Standard B-48-P6A propellers were selected to furnish the high power requirements for this airplane. Four of these engines each delivering 15,000 equivalent shaft horse power will result in performance capabilities meeting or exceeding the established design requirements of the airplane.